REQUEST FOR INFORMATION - NASA OFFICE OF THE CHIEF TECHNOLOGIST EARLY STAGE INNOVATION DIVISION - SPACE TECHNOLOGY RESEARCH GRANTS PROGRAM

General Information

Solicitation Number:	NNH10UA005L-1
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Response Date:	Sep 12, 2010
Recovery and Reinvestment Act Action?:	NO
Classification Code:	A -- Research and Development
NAICS Code:	541712 - Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
Set-Aside Code:	N/A
Internet Address:	http://prod.nais.nasa.gov/cgi-bin/eps/bizops.cgi?gr=D&pin=04#143326

Office Address

NASA/Goddard Space Flight Center, NASA Headquarters Acquisition Branch, Code 210.H, Greenbelt, MD 20771

Description

In Fiscal Year 2011, NASA plans to begin the Space Technology Research Grants Program. As part of the Office of the Chief Technologist's Early Stage Innovation Division, this Program will foster the development of innovative low Technology Readiness Level (TRL) technologies for advanced space systems and space technology. The goal of this low TRL technology endeavor will be to accelerate the development of push technologies (technology development not directed at a specific mission) to support the future space science and exploration needs of NASA, other government agencies, and the commercial space sector.

To support Program formulation, the NASA Office of the Chief Technologist (OCT) is seeking input on the Space Technology Research Grants strategy described in this document and suggestions for space technologies that NASA should consider.

Efforts are expected to be short term - typically one year in duration - and will increase the TRL of technologies that might be applied to multiple, current missions or to allow NASA to pursue entirely new missions. These Early Stage Innovation Division efforts will complement the NASA Mission Directorates' focused technology activities that directly support their planned missions. While the Mission Directorate efforts typically begin at TRL 3 or higher, the TRL of the efforts to be considered in this Program will be

• TRL 1 (basic principles observed and reported),
• TRL 2 (technology concept and/or application formulated)
or
• early TRL 3 (analytical and experimental critical function and/or characteristic proof of concept)

at the beginning of the selected effort. The full TRL scale and all associated definitions are provided in the Appendix to this RFI.

Through this sustained, deliberate investment in a low TRL portfolio, NASA is seeking

• Maturation of revolutionary technologies that will greatly advance NASA's missions
• Ideas that may result in beneficial changes to NASA's long-range plans
• Cross-cutting technologies that contribute new technological approaches for aerospace applications and, ideally, also fulfill national needs in areas such as communications, power, energy storage, propulsion, safety, and security

Space technology being sought in this Program deals with the design, modeling, operation, maintenance, repair, testing, and reliability of any of the components and systems of both manned and robotic spacecraft. Several external and NASA-sponsored studies in the past decade have identified key technology advances that would benefit potential future missions:

• FINAL REPORT of the Review of U.S. Human Space Flight Plans Committee, October 22, 2009, http://legislative.nasa.gov/396093main_HSF_Cmte_FinalReport.pdf .

• A Constrained Space Exploration Technology Program: A Review of NASA's Exploration Technology Development Program, 2008, http://www.nap.edu/catalog.php?record_id=12471 .

• Report of the President's Commission on Implementation of United States Space Exploration Policy, 2004, http://www.haydenplanetarium.org/tyson/media/pdf/MoonToMarsFinalReport.pdf .

• Stepping Stone to the Future of Space Exploration: A Workshop Report, 2004, http://www.nap.edu/catalog.php?record_id=11020 .

• The 2004/2005 Advanced Planning and Integration Office (APIO) Technology

Capability Portfolios:
http://mediaman.gsfc.nasa.gov/NASA_Tech_Strategies/APIO_Tech_Portfolios_2005/APIO_Tech_Portfolios_2005.htm .

• The 2003/2004 NASA Capability Requirements Analysis and Integration (CRAI) process to turn broad NASA objectives into capability and technology investment strategies:
http://mediaman.gsfc.nasa.gov/NASA_Tech_Strategies/CRAI_Tech_Reports_2004/CRAI_Tech_Reports_2004.htm .

• The 1999-2002 NASA Decadal Planning Team and NASA Exploration Team:
http://mediaman.gsfc.nasa.gov/NASA_Tech_Strategies/DPT_Summary_Reports/DPT_Summary_Reports.htm .

This list of references may be considered a starting point for the topics to be considered and is not intended to be comprehensive.

The Space Technology Research Grants Program will seek technologies that, if successful, would lead to a dramatic improvement at the system level (performance, weight, cost, reliability, operational simplicity or other figures of merit associated with space flight hardware and missions). Although progress under any single award may be incremental, the projected impact at the system level must be substantial and clearly defined.

Typical Planned Awards

It is expected that the typical award amount will be $250K and that the typical award duration will be one year. Efforts between one and two years in duration will also be considered. Funding for all or part of a second year would be contingent upon review of Year 1 progress and availability of funds.

Awards greater than $400K/year are not expected.

It is NASA's intent to share all knowledge developed under this Program and public dissemination of results will be expected.

Awards in the form of grants, cooperative agreements, contracts or intra-agency transfers are expected, depending on the nature of the submitting organization and the nature of the effort. It is expected that most awards will be grants and intra-agency transfers.

Planned Eligibility Requirements

The Program plans to fund efforts that are led by investigators from accredited United States Universities, not-for-profit R&D Laboratories and NASA Centers. Principal investigators do not need to have extensive space technology experience. Partnerships will be encouraged and investigators will be permitted to team with any U.S. or non-U.S.

organization, institution, or public or private company. Teaming with non-U.S. organizations is subject to NASA policy of no exchange of funds.

Planned Limit on Number of Proposals and Proposal Details

In order to facilitate broad, nationwide participation in this Program, NASA is planning to limit a proposal participant – Principal Investigator, Co-Investigator or otherwise - to participation in no more than two proposals.

The science/technical/management section will be limited to 8 pages in length.

Planned Evaluation Criteria

The following criteria (listed in descending order of importance) are planned:

• Potential Impact (Value) – If successful the proposed activities must increase the TRL to enable new approaches to our current missions or allow the pursuit of entirely new missions. The following items will be considered:

– Innovation: Should be a truly innovative and forward-reaching concept, idea, or technology development effort that is important to new opportunities or creates critical capabilities.

– Comparative Assessment: By comparison with existing technologies, it has the clear potential to be superior in terms of lower cost, less mass, high reliability, improved safety, operational simplicity, ease of manufacturing, or other figures of merit for spaceflight hardware and missions.

– The expected outcome of the research effort and potential path for further development

• Technical Merit – Evaluation of the overall technical merit of the proposal. The following items will be considered:

– A sound technical approach to accomplish the proposed space technology research objectives.

– Feasibility and alignment of scope and schedule.

– Consistency with TRL requirements in the solicitation

– Clear statement of public availability of results; NASA intends to share all results developed under this solicitation.

– Effectiveness of the proposed Work Plan.

• Suitability of Team, Proposed Collaborations and Justification of Cost - The following items will be considered:

– The appropriate technical knowledge and facilities for completion of this project and the proposal team's awareness of the current state-of-the-art.

– The adequacy of the proposed budget to carry out the effort and the value of the idea relative to the investment requested.

Proposals will be selected via peer review. There is no fixed internal/external distribution; the intent is to reward the best ideas.

Typical Schedule

The typical NASA Research Announcement Schedule is expected to be as follows:

T: Solicitation Released

T + 3 weeks: Notices of Intent Due

T + 2 months: Proposals Due

T + 4 months: Selections Announced

T + 5.5 months: Awards in Place

NASA plans to issue one call and to make approximately 100 new awards per fiscal year.

Additional Information

The information provided above was presented, in abbreviated form, at the OCT Industry Forum on July 13-15. The Space Technology Research Grants presentation, and other OCT information, may be accessed from the following site:

http://www.nasa.gov/offices/oct/industry_day_info.html

Instructions to Responders

This is not a request for proposal, quotation, or invitation for bid notice and is intended for information and planning purposes only. NASA does not intend to make any awards on the basis of this RFI. However, NASA may consider issuing a formal solicitation at a later date. NASA will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that NASA is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. NASA may contact respondents to this RFI if clarification or additional information is desired. Responses to this RFI do not bind

NASA to any further actions related to this topic. Any future steps taken to award Broad Agency Announcements (BAAs), NASA Research Announcements (NRAs), Request for Proposals (RFPs) or Space Act Agreements (SAAs) will be contingent upon Congressional approval and availability of funds.

This announcement contains all information required to submit a response. No additional forms, kits, or other materials are needed.

NASA appreciates responses from all capable and qualified sources including, but not limited to, NASA Centers, universities, university affiliated research centers, federally-funded research and development centers, private or public companies, and government research laboratories.

Oral communications are not acceptable in response to this notice.

NASA will not consider material that is marked classified or proprietary. NASA reserves the right to use responses to develop future solicitations and other types of public correspondence. However, NASA does not intend to release any individual RFI responses.

Submissions have the following formatting requirements: a portable document format (.pdf) or Microsoft Word (.doc) document of 2 pages or less using 12 pt font. Only one response per individual will be considered.

RFI responses are asked to address one or both of the following areas:

• Do you have any comments for NASA consideration? Would you suggest any changes to improve the strategy described above? Please provide the rationale for your recommendation(s).
• What space technologies do you think NASA should consider for pursuit within the Space Technology Research Grants Program? A brief description of your recommendations with accompanying rationale would be appreciated.

NOTE: A response must be submitted electronically as an attachment to an email addressed to hq-esi-strg@mail.nasa.gov no later than 11:59 PM Eastern on September 12, 2010.

Questions about this RFI may be directed to:

Point of Contact

Name: Claudia M Meyer
Title: Space Technology Research Grants Program Executive
Phone: 216-509-5606
Fax: 202-358-4078

E-mail: hq-esi-strg@mail.nasa.gov